



HEALTHY PEOPLE 2010

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**Mission Statement:**

*The Epidemiology  
Program promotes  
the use of scientific  
knowledge about  
health and disease  
in populations to  
effectively carry out  
public health  
assessment, policy  
development and  
assurance.*

# Epidemiology

§ **EPIDEMIOLOGY**

§ **PUBLIC HEALTH NURSING**

§ **ANIMAL CONTROL**

§ **HEALTH PROMOTION & OUTREACH**

§ **DENTAL HEALTH**

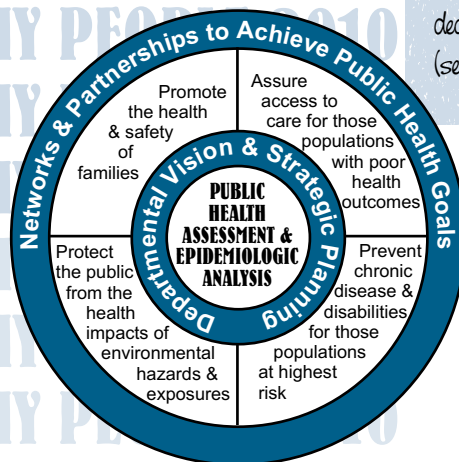
§ **ENVIRONMENTAL HEALTH**

1997-98  
Annual  
Report

# Epidemiology

## Public Health Assessment & Epidemiologic Analysis: The Cornerstones of Public Health

Epidemiology is the science of public health. Public health assessment and epidemiological analysis are the cornerstones of public health action and decision making (see figure).



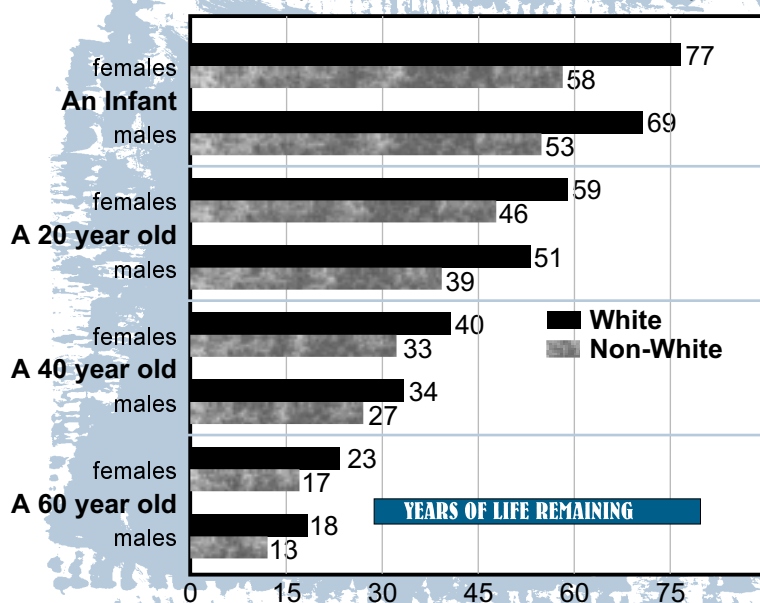
LLCHD and the Lincoln-Lancaster County Board of Health have long placed a priority on the epidemiological function as a necessary foundation for public health assessment, policy development and assurance. The Epidemiology Program leads and supports LLCHD in developing assessment tools and applying epidemiological analysis to public health promotion, protection, and health prevention efforts.

Program planning, management, and evaluation activities are dependent upon public health surveillance and data systems. These systems require epidemiological capacity for data collection, analysis, interpretation and dissemination. Epidemiology services are also essential for response to communicable disease outbreaks, environmental emergencies and reported clusters of disease. Finally, epidemiological capacity is crucial to the public health role in community health planning and policy development.

## Assessment

The Epidemiology Program implements core community health assessment activities. These include analysis and monitoring of community health indicators, investigation of community health needs and determinants of community health, development of community assessment tools, research on national and state trends, application of appropriate research and statistical methodologies, and interpretation and dissemination of community health assessment information through published reports and other means.

### Life Expectancy & Race - Lancaster County, NE

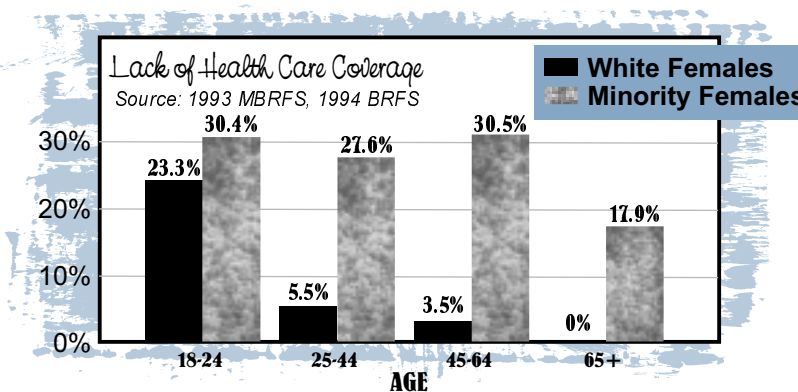


Source: Life table calculations using Lancaster County mortality data, 1987-1996.

- Life expectancy is one of the basic measures of overall health in a population.
- At birth (An infant on this graph), there are large differences in life expectancy between white and non-white males and females. These differences diminish somewhat with age.
- At all ages, white females have the longest life expectancy and non-white males have the shortest life expectancy.

## Community Health Reports

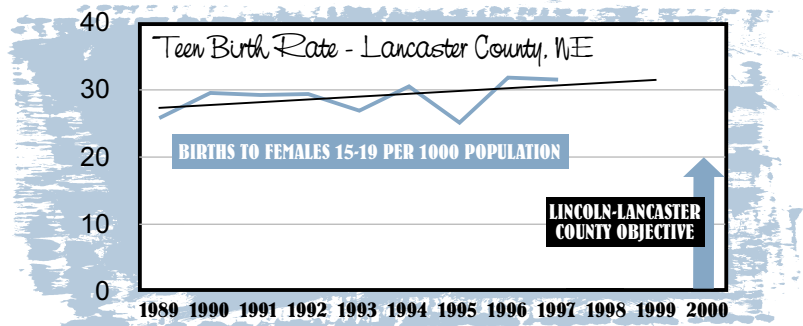
- ☞ An Update on Women's Health In Lancaster County
- ☞ Healthy People 2000 Report Card
- ☞ Hospital Discharge Data: A New Public Health Data Resource
- ☞ 1997 Youth Risk Behavior Survey Results
- ☞ Public Health Briefs:
  - Mercury Poisoning
  - AIDS and HIV in Lancaster County
- ☞ 1997 Vital Statistics Report



- ☞ 1998 Homeless Shelter Count: Results and Recommendations for Future Counts
- Infant Care Needs in Lancaster County

## Other Community Health Research Projects & Presentations

- ☞ Life Expectancy: Race and Sex Differences
- ☞ Sexually Transmitted Diseases Analysis/Report
- ☞ Women's Health: Community Comment Survey
- ☞ Community Forum on Women's Health: Results and Evaluation
- ☞ Community Health Status and Surveillance in Lancaster County
- ☞ Community Assessment Data for Mobile Health Clinic Planning
- ☞ Shigella and Pertussis: Outbreak Surveillance Techniques
- ☞ Environmental Health Assessment Projects Employing GIS
- ☞ Maternal and Infant Health Progress Review
- ☞ Nutrition and Exercise among Adolescents
- ☞ Healthy People 2000 Objectives Update
- ☞ Suicide Among Adolescents
- ☞ Intentional and Unintentional Injury Among Youth
- ☞ Leading Causes of Injury and Death Among Young Children



- ☞ Other Injury Incidence Analyses
- ☞ Causes of Death Acute Care and Emergency Care
- ☞ Sexual Activity, Births and STDs Among Teen Females
- ☞ Non-Physician Attended Births
- ☞ Pneumonia Death Trends
- ☞ Illicit Drug Use among Pregnant Mothers
- ☞ Frequency of Divorce and Children Affected
- ☞ Demographic Estimates for Public Health Assessment
- ☞ Community Health Information Website Concept Development
- ☞ Behavioral Risk Factor Survey Data Analysis

### Public Health Data Resource

The Epidemiology Program is instrumental in providing relevant public health data and epidemiologic information to individuals and organizations throughout the community. This information is used for community needs assessment, policy development, health promotion and public education, evaluation and improvement of services and research purposes.

Every year, epidemiological information and assistance is provided to hundreds of interested citizens, community agencies, health professionals, students, businesses, schools, human service providers, researchers, and elected officials, including the Board of Health, City Council, Mayor's Office, County Board of Commissioners and the Nebraska Legislature.

The Epidemiology Program is the locus of public health data capacity. Staff collect and manage a wide array of public health datasets in electronic form so that their analysis can be applied to the surveillance and study of public health problems. This data includes population health datasets, health care-based data, public health program data, outbreak and health event surveillance data, environmental risk data, demographics and other community information.

Management of this public health data resource involves equal attention to new data acquisition, maintenance of existing data archives and planning for future data collection and analysis.

### **Major Public Health Surveillance Databases**

- ✓ Vital Statistics: since 1987, annual
- ✓ Adult Behavioral Risk Factor Survey: since 1989, biannual
- ✓ Youth Risk Behavior Survey: since 1991, biannual
- ✓ Injury Surveillance (E-coded emergency care data): since 1992, annual
- ✓ Minority Behavioral Risk Factor Survey: 1994
- ✓ Cancer Incidence: since 1987, annual
- ✓ Sexually Transmitted Diseases: since 1985, annual
- ✓ Acute Care (inpatient hospital discharges): since 1995, annual
- ✓ Annual Demographic Estimates for Health Assessment
- ✓ Environmental Health Hazard Databases
- ✓ Other Geographic Information Systems-based Datasets

### *Policy Development & Community Planning*

The Epidemiology Program supports policy development by providing an epidemiological perspective to decision making processes, promoting effective utilization of public health data and facilitating public health strategic planning and community health initiatives.

*I attended Nebraska's Youth at Risk Symposium and I've seen firsthand a renewed awareness of the health needs of our youth. I congratulate the Health Department for its ongoing assessment of the health needs of our community and for helping us be aware of what we must do to keep our communities great places to work and live.*

*Don Clifton, Chairman,  
The Gallup Organization*

The Epidemiology Program works in partnership with all department programs, the Board of Health and community agencies to support effective policy development and community health planning. Epidemiology staff strive to assure that epidemiological issues and data on community health and program effectiveness are utilized in departmental planning and policy development. Staff also play a role in community health planning and coalition building by facilitating or participating in collaborative community initiatives to address health and human services planning, assessment and system development.

*Selected Policy Development and Community Planning Activities (Epidemiology Program)*

*Community Forum on Women's Health in Lancaster County*

*Nebraska's Youth at Risk Symposium*

*Healthy People 2000/2010 community health planning process*

*Community Health Endowment Board: facilitation and testimony*

*Departmental planning and budget processes*

*Orientation of community leaders to community health status/assessment*

*Public health legislation: research, monitoring and testimony*

*Response to policy maker requests for public health assessment information*

*Homeless Shelter Count Report, methods review and recommendations*

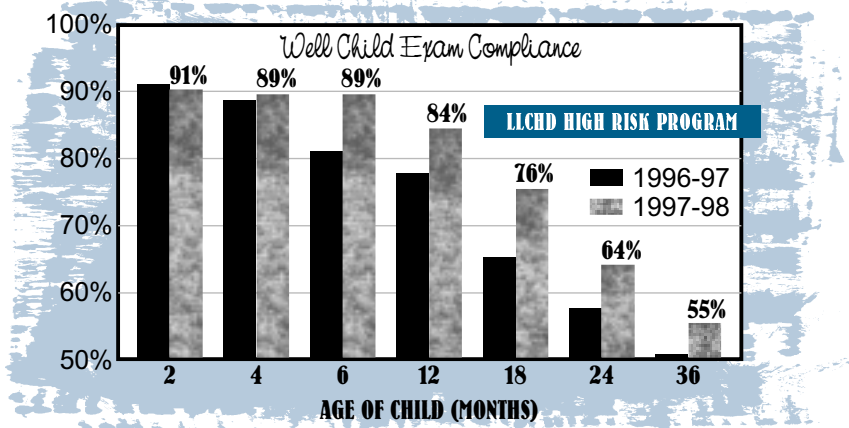


## Program Assessment

The Epidemiology Program provides analytical support to programs throughout the department, helping them to conduct needs assessments, develop program surveillance strategies, design program databases and evaluation instruments, analyze program data and evaluate and report program results. Epidemiology staff promote the use of program data in policy development and public reporting and help programs use epidemiologic approaches and public health assessment data to support program activities.

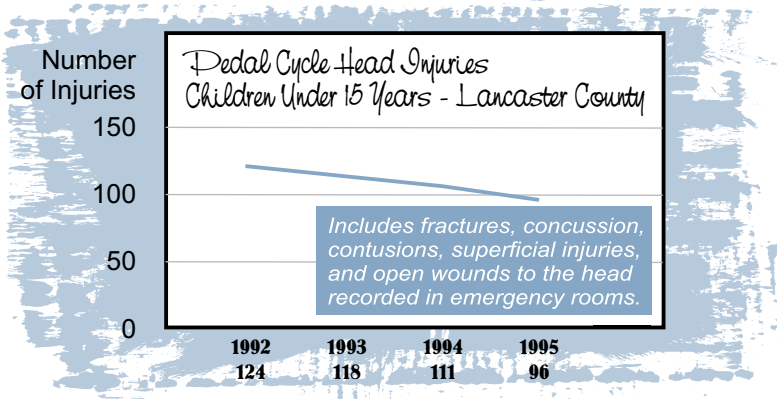
## Program Assessment Projects

- ☑ Healthy Homes Program Data Analysis and Reporting
- ☑ Parenting Paths: High Risk Program Parenting Assessment
- ☑ "Take the Challenge" Physical Activity Promotion Project Evaluation
- ☑ High Risk Program Annual Reporting
- ☑ High Risk Program Client Satisfaction Evaluation
- ☑ Infant Care New Parent Survey
- ☑ Infant Care Provider Survey
- ☑ Animal Control Dispatch Planning
- ☑ Legionella Screening Questionnaire
- ☑ WIC Program Client and Needs Data





- ☞ Fall Flu Shot Client Evaluation
- ☞ Mobile Health Clinic Planning Data
- ☞ Mobile Health Clinic Needs Assessment Survey
- ☞ Community Access to Coordinated Health Care Client Data
- ☞ Childhood Lead Poisoning Surveillance
- ☞ Family Care Solutions Program Reporting
- ☞ Indoor Air Quality Teacher Assessment Tool
- ☞ Helmet Use Evaluation Data
- ☞ Nuisance Complaints Work Planning
- ☞ Household Hazardous Waste Collections Analysis
- ☞ Food Protection Program Support



### Geographic Information Systems

Geographic Information Systems (GIS) has rapidly become an important assessment tool in the public health field. GIS is computer and allied technology that allows one to analyze public health data on a geographic dimension. GIS helps to clarify and emphasize spatial patterns in community health, quickly retrieve data relevant to a geographical area, display many layers and types of community information in the same space, and model the behavior of disease and environmental events.

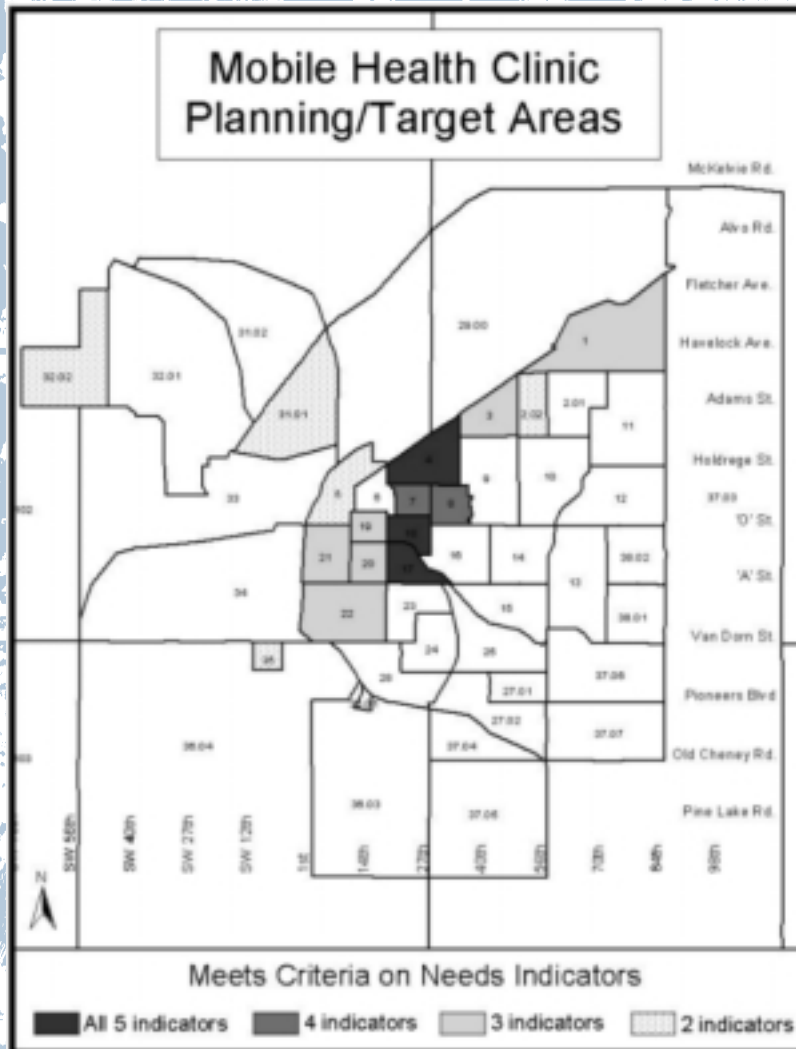
LLCHD has been nationally recognized for being on the vanguard of GIS applications in public health at the local level. LLCHD efforts to develop GIS technology and staff have enhanced agency capacity for assessment, resource allocation, program planning and evaluation, health communication and education and policy development. GIS was applied to a wide variety of assessment and planning projects during the past year:

## GIS Community & Program Assessment Projects

- ☑ Key Geographic Public Health Indicators
- ☑ Mobile Health Clinic Planning
- ☑ Shigella and Pertussis Outbreak data
- ☑ Natality Data Analyses
- ☑ WIC Program: Client and Community Needs Data
- ☑ Animal Control Dispatch Planning
- ☑ Childhood Lead Poisoning Screening
- ☑ Vulnerable Community Sites Databases
- ☑ Environmental Health Hazard Risk Survey
- ☑ Tier II (Hazardous Chemical Storage Sites)
- ☑ Leaking Underground Storage Tanks
- ☑ NPDES (Waterway Discharge Permits)
- ☑ Toxic Release Inventory (Air Pollutant Releases)
- ☑ Soils data for Risk Analysis and Health Threat Response
- ☑ Air Pollution Sources, HAP concentrations, and Air Monitor Locations
- ☑ Groundwater Data: Wells/Protection Areas, Well Testing, and Lake Advisories
- ☑ Special Waste Database
- ☑ Nuisance Complaints
- ☑ Household Hazardous Waste Collections
- ☑ Food Protection Program Data
- ☑ Environmental Analyses/Land Use Planning
- ☑ Demographic Mapping
- ☑ Marketing/Newspaper Circulation Mapping
- ☑ Street mapping (various program needs)

## GIS Development

- ☑ National, State and Local Presentations Given on GIS in Public Health (NGISPH, NPHA, \*NPHA, NEHA, CSTE regional, and others)
- ☑ Educational Presentations (utilizing live/interactive GIS)
- ☑ Community Health Data/GIS Website Feasibility Study
- ☑ GIS Database Management, Development and Planning
- ☑ GIS Technology Needs/Maintenance Assessment
- ☑ Interagency Collaboration & Data Sharing



## *Epidemiologic Response*

The Epidemiology Program helps to assure community health during infectious disease outbreaks and environmental or community health threats by coordinating epidemiologic response to these threats.

This year, several public health outbreaks and incidents of concern called for epidemiologic action. These included outbreaks of Giardia, Shigella, Pertussis, Legionella, foodborne illnesses and surveillance measures for a number of other communicable diseases; cases of hemolytic illness at a local dialysis center; and a number of environmental response incidents requiring epidemiologic follow-up. Disease and toxic substance research, case follow up, data collection, analysis and reporting were employed as needed.

### *Epidemiology Services...*

are necessary to enable public health agencies to conduct several essential public health services:

- ☛ Monitor health status to identify community health problems.
- ☛ Diagnose and investigate health problems and health hazards in the community.
- ☛ Inform, educate, and empower people about health issues.
- ☛ Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
- ☛ Research for new insights and innovative solutions to health problems

*National Healthy People 2010 Draft Objectives,  
Sept. 15, 1998*

### *Epidemiologic Capacity*

A skilled workforce and quality data/information systems are necessary to provide effective epidemiologic support for public health activities. Epidemiology services are provided by staff trained in epidemiology, demography, sociology, survey design, public program and policy analysis, quantitative and qualitative social data methods, communication and geographic information systems. The Epidemiology Program is staffed by the Public Health Epidemiologist, a second epidemiology specialist and a geographic information systems specialist.

### *Grants/Awards*

The Epidemiology Program continues to receive Public Health Prevention block grant funds and prepared several other grant proposals during the past year to attempt to build epidemiological and geographic information systems capacity.

*Nebraska Department of Health \$16,315*